New Electricity Storage Projects Set the Stage for Further Grid Modernization

Ontario is looking to build greater flexibility and resiliency into its power system with the addition of new projects to test storage technologies. Ontario’s grid operator, the Independent Electricity System Operator (IESO), has selected storage technologies from five companies that can offer ancillary services to support increased reliability and efficiency of the grid. The five companies are Canadian Solar Solutions Inc., Convergent Energy and Power LLC, Dimplex North America LTD, Hecate Energy and Hydrogenics Corp.

By procuring storage, Ontario will get a head start on testing new technologies to help manage the changing conditions on the power system. The IESO will take the learnings from these new projects, totalling 34 megawatts (MW), to understand how to better manage the day-to-day operation of the power grid using electricity storage.

“Storage facilities on the grid are a real game changer,” said Bruce Campbell, President and CEO of the IESO. “Our electricity system was built on the concept that you can’t store large amounts of electricity – we produce electricity at the same time as we consume it. Energy storage projects will provide more flexibility and offer more options to manage the system efficiently.”

Energy storage can provide considerable flexibility. It can help relieve localized congestion in the transmission system, as well as maximize the output from wind and solar power generators, storing energy when it’s available to be used later when it is needed most. It can also correct small variations in electric frequency on the power system and support voltages.

Project features:

- All successful projects must provide at least one ancillary service to the power grid:
  - **Regulation service**: acts on a second-to-second basis to match generation to demand and helps correct variations in power system frequency.
  - **Reactive Support and Voltage Control Service**: are needed to maintain voltages and support the flow of electricity along power lines.

- These projects include facilities connected to the high voltage transmission network in southern and northern Ontario, and projects connected to the distribution system in southern Ontario.

“Investing in energy storage technologies is an important part of the Ontario government’s plan to provide clean, reliable and affordable power to consumers,” said Bob Chiarelli, Ontario Minister of Energy. “Together with
the IESO, we're building a smarter, more advanced grid that will ensure our entire system uses energy as efficiently as possible.

The Ontario government's Long-Term Energy Plan identified the need to move forward with 50 MW of energy storage. The Ontario Power Authority will follow this procurement by the IESO to obtain the remainder of the 50 MW target.

The selection process was overseen by a Fairness Commissioner to ensure impartiality and transparency which aided in maximizing value to ratepayers. The process of finalizing contracts with each supplier has begun and is targeted to be complete by the end of the summer.

A backgrounder on electricity storage and the related technologies follows: www.ieso.ca/documents/media/Backgrounder-Energy_Storage.pdf.